PATENT

SPECIFICATION

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SYSTEMS AND METHODS FOR STABILIZING A HANDHELD OBJECT

CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims the benefit of U.S. Provisional Application No. 60/467,672, filed on May 5, 2003, entitled "Pullpod."

FIELD OF THE INVENTION

[0001] The present invention relates generally to stabilization devices and methods for using the same. More specifically, the present invention relates to handheld object stabilizers and methods for utilizing same with a variety of handheld objects.

BACKGROUND OF THE INVENTION

[0002] Various handheld objects require proper stabilization during use so that proper and/or improved performance and results can be obtained therefrom. For example, to obtain high quality, non-blurry photographs or movies, a camera or camcorder must be properly stabilized while the photographs or movies are being taken. Likewise, firearms, binoculars, and telescopes, etc., all benefit from being held stable

during use, so that better aim or better views can be achieved. As such, various types of stabilizing devices exist for stabilizing such objects.

[0003] Existing stabilizing devices for stabilizing handheld objects, such as tripods, monopods, gun rests, and the like, are generally large, cumbersome, heavy and difficult to transport easily. These existing stabilizing devices can also be expensive. Therefore, it would be desirable to have systems and methods for stabilizing a variety of handheld objects, wherein the systems are lightweight, portable, effective, and easy to use. Such systems would ideally offer the functionality of a tripod, the stability of a monopod, and a portability of a pocketknife.

SUMMARY OF THE INVENTION

[0004] Accordingly, the above-identified shortcomings of existing handheld object stabilizer systems and methods are overcome by embodiments of the present invention, which relates to novel systems and methods for stabilizing a variety of handheld objects. These stabilizing systems are lightweight, portable, effective and easy to use, making them ideal for use in a variety of situations.

[0005] Embodiments of this invention comprise systems/methods for an easily portable stabilizing apparatus for use with hand-held devices such as cameras, binoculars, camcorders, firearms and other devices where relative immobilization of the hand-held device is preferred. The stabilizing apparatus comprises an attachment anchor for securing the stabilizing device to the hand-held apparatus. A stabilizing cord is attached to the attachment anchor. The stabilizing cord is then secured by either

attachment to a stationary object or by compressing the cord between two or more objects, such as an operator's foot and the ground. Optionally, a cord lock can be employed to quickly secure the stabilizing cord to a predetermined height. A cord cap and cord spools and recoil devices can also be employed to facilitate stabilizing cord storage.

[0006] Further features, aspects and advantages of the present invention will be more readily apparent to those skilled in the art during the course of the following description, wherein references are made to the accompanying figures which illustrate some preferred forms of the present invention, and wherein like characters of reference designate like parts throughout the drawings.

DESCRIPTION OF THE DRAWINGS

[0007] The systems and methods of the present invention are described herein below with reference to various figures, in which:

[0008] Figure 1 is a photograph showing one exemplary non-limiting embodiment of a stabilizer of this invention that comprises a stabilizing cord, an attachment, a distal end cap, and a cord lock;

[0009] Figure 2 is a photograph showing the attachment in an exemplary non-limiting stabilizer of this invention attached to a 35mm camera;

[00010] Figure 3 is a photograph showing the cord lock and distal end depicted in Figures 1, resting against one side of a person's foot during use;

[00011] Figure 4 is a photograph showing an exemplary non-limiting stabilizer of this invention is use attached to a camera.

[00012] Figure 5 is a photograph showing an exemplary non-limiting button adaptor attached to a disposable camera that can be utilized with the current invention.

[00013] Figure 6 is a photograph showing an exemplary non-limiting button sling with a button adaptor attached thereto, that can be utilized with the current invention.

[00014] Figure 7 is a photograph showing an the attachment with an exemplary non-limiting hook adaptor.

[00015] Figure 8 is a photograph showing the cord lock of the present invention with a retention peg attached thereto, for use with a belt attachment.

[00016] Figure 9 is a photograph showing the cord lock and retention peg of Figure 8 in engagement with a non-limiting belt anchoring adaptor.

DETAILED DESCRIPTION OF THE INVENTION

[00017] For the purposes of promoting an understanding of the invention, reference will now be made to some preferred embodiments of the present invention as illustrated in FIGURES 1 – 9 and specific language used to describe the same. The

terminology used herein is for the purpose of description, not limitation. Specific structural and functional details disclosed herein are not to be interpreted as limiting, but merely as a basis for the claims as a representative basis for teaching one skilled in the art to variously employ the present invention. Any modifications or variations in the depicted structures and methods, and such further applications of the principles of the invention as illustrated herein, as would normally occur to one skilled in the art, are considered to be within the spirit and scope of this invention.

[00018] This invention relates to systems and methods for stabilizing a variety of handheld objects, such as for example, a camera (i.e., SLR, compact, digital, etc.), a camcorder (i.e., tape, digital, etc.), a firearm, a set of binoculars, a telescope, and the like. These systems and methods offer the functionality of a tripod, the stability of a monopod, and the portability of a pocketknife. These systems and methods allow people of all ages to take better, less shaky photographs and movies with a camera or camcorder, and may also allow people to have better stability and aim with firearms and/or binoculars, telescopes, or the like. These systems and methods are simple, fun, easy to use, and can prove to be indispensable in stabilizing many handheld objects.

[00019] Embodiments of this invention comprise a handheld object stabilizer 10 and methods for using the same. Referring now to Figures 1 – 9, these stabilizers 10 generally comprise a stabilizing cord 12 that is operatively attached to an attachment 14. Embodiments may also comprise a female button adapter 16 (See Fig. 5), a cord lock 26, a distal end cap 24, and/or any combination of these features. During use, the stabilizing cord 12 can be secured near its distal end, and then the stabilizing cord 12 can be stretched in a manner such that, when the handheld object is positioned properly for use

(i.e., in front of a user's eye), the stabilizing cord 12 is stretched to a taut position. In this manner, the stabilizer 10 stabilizes the handheld object and allows better aim, better views, and/or better photographs or movie images to be achieved.

[00020] The stabilizing cord 12 should be of long enough length for its intended purpose. For example, when being used to stabilize a camera or camcorder, the stabilizing cord 12 may be approximately seven feet long or so, so that sufficient length is available to accommodate the wide range of people that may be using the device while standing in an upright position. By using the handheld object stabilizers 10 of this invention, a fixed focal point may be maintained, which is ideal when taking a series of panoramic photographs that will later be linked together into a single, larger photograph, when taking movies with a camcorder, or even when action, low light and/or everyday photographs or movies are being taken. The handheld object stabilizers 10 of this invention also allow one-handed photographs or movies to be easily taken. The stabilizing cords 12 that are utilized in this invention may comprise any suitable material, and preferably comprise a non-stretch material. Some non-limiting examples of suitable materials comprise industrial cord, chain, rope, nylon cord, polyester cord, steel cable, any natural or manmade textile rope or cord, and wire (i.e., copper, steel, etc.). Many other suitable materials also exist.

[00021] The attachment 14 of this invention may be designed to be attached to a handheld object in any suitable manner. For example, in one non-limiting embodiment, such as that depicted in Figure 1 and 2, a stainless steel or aluminum male threaded attachment 14 screws into a female tripod attachment mechanism that is present on the bottom of most, if not all, cameras, camcorders, and/or binoculars. For handheld objects

without a female attachment mechanism, female button adapters 16 comprising a female attachment mechanism therein may be attached in any suitable manner to handheld objects that do not already comprise a female attachment mechanism therein. For example, a female button adapter 16 may be glued or otherwise adhered onto a handheld object, and then the attachment 14 of the stabilizers of this invention can be attached to the female button adapter 16, which thereby secures the stabilizer 10 to the handheld object. Using stainless steel or aluminum for the attachment 14 makes the stabilizer rustproof and waterproof, which may be ideal in certain situations. However, any suitable material may be used for the attachment 14, such as hard plastics.

[00022] Many other suitable means of attaching the handheld object stabilizer 10 and/or the attachment 14 to a handheld object are also contemplated, but not shown in the drawings. One of ordinary skill in the art would readily recognize their adaptability and uses. For example, some embodiments of this invention may be attached to a handheld object via a sling attachment either in addition to or in lieu of the attachment 14. In some embodiments, a female threaded sling attachment may allow a male threaded attachment 14 on the stabilizer 10 to be attached thereto. In alternative embodiments, the sling attachment may comprise a sling 20 and a buckle 23a, 23b as shown in figure 6, wherein the sling 20 may be secured to the stabilizing cord 12 around the attachment 14 with or without the use of a female button adaptor 16. The sling 20 may be wrapped around or slung over a handheld object, so that when tension is put on the stabilizing cord 12 to pull it taut, the sling 20 also becomes taut, thereby stabilizing the handheld object. Alternatively, the sling 20 may be wrapped around or slung over a person's hand or wrist instead of being wrapped around the handheld object itself. In yet other embodiments, a sling attachment could be directly integrated onto one end of the

stabilizing cord 12 so that the sling is permanently attached to the stabilizing cord 12, thereby eliminating the need for an attachment 14 and a sling attachment buckle. The sling 20 may comprise any suitable material that can easily be slid on or around a variety of handheld objects. Some non-limiting examples of suitable materials comprise flexible cloth, leather, nylon webbing, cotton webbing, and/or polyester webbing. Many other suitable materials also exist.

[00023] Figure 7 shows another alternative for attaching the stabilizer 10 of the present invention to a hand held device that lacks a female attachment mechanism. The attachment 14 can be attached to a clasp 34 that has a female attachment mechanism therein. The clasp can then be attached to any accessible loop, strap, recess or other feature in the handheld device that is capable of receiving a clasp, in order to stabilize the handheld device. One skilled in the art would recognize that the clasp shown in Figure 7 is just one of many different types of clasps that can be used, and such should not be seen as a limiting feature of the invention.

[00024] Another embodiments of this invention that is contemplated but not shown may comprise netting instead of a sling attachment. A handheld object may be placed inside the netting, and then the netting may be secured around the handheld object. The netting may comprise any suitable material that can easily be slid on or around a variety of handheld objects. Some non-limiting examples of suitable materials comprise flexible cloth, nylon webbing, cotton webbing, and/or polyester webbing. Many other suitable materials also exist.

[00025] Embodiments of this invention may comprise a cord lock 26, as shown in Figures 1, 2, 3 and 4. The cord lock 26 may be set so that a person knows approximately where they need to secure the stabilizing cord 12 during use so that it pulls taut at the proper desired location, as seen in Figure 4. For example, if a user typically stands on the distal end of the stabilizing cord 12 during use, they can move the cord lock 26 to a position so that when they stand on the distal end of the stabilizing cord 12, the cord lock 26 rests against one side of their foot, as shown in Figure 4. In this manner, the user will know where to step on the stabilizing cord 12 during use, thereby requiring fewer adjustments to get the stabilizing cord 12 pulled taut at the proper location.

[00026] Embodiments of this invention may comprise a distal end cap 24, as shown in Figures 1, 3, and 4, to prevent the stabilizing cord 12 from unraveling and to keep the cord lock 26 from slipping off the end of the stabilizing cord 12. The distal end of the stabilizing cord 12 may be secured during use in any suitable manner, such as for example, by being tied or otherwise connected to a predetermined object such as, but not limited to, a table, a chair, a belt, a belt loop, a steering wheel, a tree, a post, a fence, a waist, etc., or by being placed under a person's foot or knee, and then stretched to a taut position during use. In some embodiments, the distal end of the stabilizing cord 12 may comprise a loop therein, instead of a distal end cap 24, wherein the loop may be slipped around a foot 60 or other object and be secured thereby.

[00027] Embodiments of this invention may comprise a snaphook, loop hook or some device to allow the cord to be secured to itself after wrapping around a predetermined object such as, but not limited to, the operator's waist, furniture leg, belt loop, chair, steering wheel, tree, fence, etc.

[00028] Referring to Figures 8 and 9, in an alternative embodiment of the present invention, a retention peg 36 can be attached to the cord lock 26. The retention peg 36 is compatible with the belt-anchoring device 38. The belt-anchoring device 38 (typically those that come with a cell phone) can be attached to the belt of the user through any means known in the art. The retention peg 36 is releasably inserted into the belt-anchor 38 to provide a secured point of attachment from which the stabilizing cord 12 can be stretched taut. Attachment to the belt anchor eliminates the need to stretch taut the entire length of the stabilizing cord 12. Moreover, the retention peg can be easily engaged with and disengaged from the belt-anchor, easing storage of the stabilizer 10. The belt-anchor 38 could also comprise a retractable housing in which to store the stabilizing cord 12.

[00029] Embodiments of this invention may comprise a stabilizing cord 12 that can retract into a stabilizing cord retracting housing (not shown) for storage. Such devices are well known in the art and are therefore not specifically described herein.

[00030] Embodiments of this invention may comprise a device storage spool (not shown) that allows the stabilizers 10 of this invention to be stored compactly. The device storage spool may be designed so that the stabilizing cord 12 can be wrapped therearound, and may also comprise a space for housing the attachment 14 therein.

[00031] One exemplary non-limiting stabilizer 10 of this invention attached to a 35mm camera 52 is shown in Figure 2. One of ordinary skill in the art would recognize that a camcorder, pair of binoculars, firearm, or any other hand-held object could be depicted in the drawing. The invention can be utilized with any hand-held device that would perform better under stabilized conditions with or without the use of the various optional attachments described above.

[00032] As shown in Figure 4, good results can be obtained with the handheld object stabilizers 10 of this invention if the person is leaning into the stabilizer 10 with their body while pulling the stabilizing cord 12 taut, keeping their elbows close to their body, and stepping or kneeling on the stabilizing cord 12 in either a sitting, standing or kneeling position.

[00033] As described above, this invention provides systems and methods for stabilizing a variety of handheld objects. Advantageously, these systems and methods allow people to take clearer, more stable images with much less effort than previously required. Furthermore, these systems and methods allow people to stabilize other handheld objects (i.e., firearms, binoculars, telescopes, etc.), so that better aim or better views can be achieved. These systems are small, inexpensive, and lightweight, making them easy to transport places where it would not be feasible to carry a tripod, monopod, or other stabilizing device along. Many other advantages will be apparent to those skilled in the relevant art.

[00034] Various embodiments of this invention have been described in fulfillment of the various needs that the invention meets. It should be recognized that these embodiments are merely illustrative of the principles of various embodiments of the present invention. Numerous modifications and adaptations thereof will be apparent to those skilled in the art without departing from the spirit and scope of the present invention. Thus, it is intended that the present invention cover all suitable modifications and variations as come within the scope of the appended claims and their equivalents.